

Helical tomotherapy for breast cancer stage IIIC including internal mammary chain

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Introduction. Radiation therapy is an integral part in the combined treatment of breast cancer. The benefit is well established in terms of both local control and survival endpoints. Helical Tomotherapy has been proposed as an alternative to standard 3D conformal radiotherapy.

Purpose. To evaluate dosimetric characteristics of Helical Tomotherapy for breast cancer radiotherapy.

Methods and materials. Nine patients with histologically proven breast cancer affecting internal mammary chain (clinically and/or histologically confirmed) stage IIIC, were included in this study. CT simulation scans were used to contour the planning target volumes (PTV) including the chest wall/breast, supraclavicular, axillary, and internal mammary lymph nodes. Dose prescription was 50/50.4, in 25/28 fractions of 2/1.8 Gy, to the PTV and treatment planning objectives were to cover at least 95% of the planning target volume with the 95% isodose. Beamlet entrance and/or exit throughout critical structures was blocked to protect the lungs, heart, and contralateral breast.

Results. Median homogeneity index (maximum dose/prescribed dose) was 1.23 (range 1.05–1.48). Median coverage index (minimum dose/prescribed dose) was 0.72 (range 0.54–0.9). Median V30, V20 and V5 for ipsilateral lung was 16.72% (range 0–26.5%), 30.8% (range 10.62–40%) and 97.6% (range 64.46–100%) respectively. Median V30, V20 and V5 for contralateral lung was 0% (range 0–0.48%), 0.095% (range 0–2.58%) and 49% (range 5.84–92.38%) respectively. Median V30, V20 and V5 for heart was 1.112% (range 0–4.6%), 4% (range 0.025–15.44%) and 96.52% (range 27.3–100%) respectively. Median V20, V10 and V5 for contralateral breast was 0% (range 0–0.37%), 1.25% (range 0.1–11.82%) and 28% (range 15.53–49.4%) respectively.

Conclusion. HT offers acceptable dose distribution. This technique achieves high homogeneity and conformality, and reduces the hot-spots in organs at risk although increasing the low dose areas. However, clinical advantage of using HT in breast cancer is unknown. Further studies of long monitoring period are required.

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Hypofractionated radiation therapy in breast cancer. Experience of a regional department

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Introduction. Breast cancer sensitivity to large fraction size may be enhanced using hypofractionated radiotherapy, thereby shortening overall treatment time. **Purpose:** To report early outcomes of whole-breast hypofractionation radiation scheme.

Methods and materials. Retrospective institutional review. Eligibility included breast cancer patients treated with hypofractionated radiation therapy after conservative surgery. Node metastases or adjuvant chemotherapy were not exclusion criteria for this analysis. The whole breast volume received 40.05 Gy in 2.47 Gy fractions with a sequential lumpectomy boost to administrate 10–20 Gy in 5–10 fractions.

Results. Between January 2009 and June 2012, 182 patients were treated in our department; median age 65 years. Stage distribution was as follows: TisN0, n = 31; T1N0-1, n = 103; T2N0-2, n = 45; T3N1, n = 2 and T4N0 n = 1. With a median follow-up of 31 months (range, 7–50 months) the median survival was 32 months (95% confidence interval [CI] 29.2–34.8). Acute National Cancer Institute/Common Toxicity Criteria grade 1, 2 and 3 skin toxicity was observed in 47.2%, 12.1% and 2.1% respectively, and grade 1 lung toxicity only in 1.6%. We observed 1 local relapse and 3 deaths, but only 2 were related to the tumor. Among the patients with ≥2-year follow-up no toxicity higher than grade 2 was observed (Late Effects in Normal Tissues–Subjective, Objective, Management, and Analytic scale).

Conclusions. The hypofractionated radiation schedule employed to whole-breast followed by sequential boost can be safely administered. With current follow-up, the results are encouraging and suggest minimal side effects and excellent local control.

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Hypofractionation in breast cancer. Experience of a single institution

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Introduction. In the last years numerous studies have shown the equivalence between standard and hypofractionated treatment in breast cancer in terms of local control.

Objective. Analyze, in terms of toxicity, the results of our institution in the treatment of patients in a hypofractionated way.

Materials and methods. We have analyzed all the patients treated in our service (from May 2009 to September 2012) following the scheme of the study START B (40.05 Gy/15 fractions). We excluded locally advanced cancers that had required mastectomy